

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Patent Application of:) Confirmation No. 8811
Andrew G.L. BLACKWOOD) Group Art Unit: 3657
Application No. 10/517,834) Examiner: Mahbubur Rashid
Filed: July 20, 2005)
For: VEHICLE AIR SUPPLY SYSTEM) Date: October 28, 2009

AMENDED BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This amended brief is being filed in response to the notification of non-compliant appeal brief mailed on September 29, 2009. Specifically, this amended brief includes the figure and reference characters related to the limitations provided under the summary of claimed subject matter on pp. 2-3, as seen below. The contents of the Appeal Brief filed on August 11, 2009 in support of the Notice of August 11, 2009, to appeal the Examiner's final rejections in the Final Office Action dated May 11, 2009 are included herein in their entirety.

I. REAL PARTY IN INTEREST

Wabco Automotive UK Limited is the assignee and real party in interest.

II. RELATED APPEALS AND INTERFERENCES

There are presently no appeals or interferences known to Appellant, Appellant's representative, or the assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

For the purposes of this Appeal, claims 1, 3-10, and 12 are pending, and claims 2 and 11 are canceled. This Appeal is taken from the rejection of claims 1, 3-10 and 12, as submitted in the Appendix herewith.

IV. STATUS OF AMENDMENTS

No claim amendments have been made subsequent to the Final Office Action of May 11, 2009.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This Appeal is taken from the rejection of claims 1, 3-10, and 12, of which claim 1 is independent.

Independent claim 1 relates to a vehicle air supply system (see the specification, e.g., p. 2, ll. 6-7; FIG. 1, item 10) having a compressor (see the specification, e.g., p. 2, ll. 6-7; FIG. 1, item 12), an air dryer (see the specification, e.g., p. 2, ll. 6-7; FIG. 1, item 14), a reservoir adapted to receive air from the compressor via the air dryer (see the specification, e.g., page 2, ll. 6-8; FIG. 1, item 18), and control means operable to cause a standard regeneration of the air dryer when a predetermined system condition is met (see the specification, e.g., p. 2, ll. 8-9; FIG. 1, items 24 and 26), the control means also being operable to cause an intermediate regeneration of the air dryer in advance of said predetermined system condition being met if said system

condition is not met within a predetermined time period (see the specification, e.g., p. 2, ll. 9-10; FIG. 1, items 24 and 26), the control means further being operable to prevent the intermediate regeneration (see the specification, e.g., p. 2, ll. 11-12; FIG. 1, items 24 and 26), wherein the control means includes a governor adapted to cause the standard regeneration and a governor bypass adapted to cause the intermediate regeneration (see the specification, e.g., p. 2, ll. 14-16; FIG. 1, items 20 and 40), the control means being adapted so as to disable the governor bypass to prevent the intermediate regeneration (see the specification, e.g., p. 2, ll. 16-17; FIG. 1, item 40), wherein the control means includes a timer (see the specification, e.g., p. 3, ll. 3-7; FIG. 26), wherein the control means is operable to selectively cause and prevent the intermediate regeneration depending upon air supply requirements (see the specification, e.g., p. 3, ll. 9-18; FIG. 24 and 26).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The ground of rejection to be reviewed on appeal is the rejection of claims 1, 3-10, and 12 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Beck et al. (WO 01/17834A) (*Beck*, hereinafter) in view of Cramer et al. (U.S. Patent No. 5,027,529) (*Cramer*, hereinafter).

VII. ARGUMENTS

A. The Rejection of Claims 1, 3-10, and 12 under 35 U.S.C. § 103(a) as being Unpatentable over Beck in view of Cramer should be REVERSED.

35 U.S.C. § 103(a) provides the following:

35 U.S.C. § 103: Conditions for patentability; non-obvious subject matter.

A person shall be entitled to a patent unless —

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a

whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-10, and 12 were rejected in the Final Office Action of May 11, 2009, as being unpatentable over *Beck* in view of *Cramer* under 35 U.S.C. § 103(a). However, *Beck* and *Cramer*, taken either alone or in combination, fail to disclose, teach, or suggest the invention recited in the pending claims.

1. Neither Beck nor Cramer, Taken Either Alone or In Combination, Disclose, Suggest, or Render Obvious The Invention as Recited in Independent Claim 1 as is Required under 35 U.S.C. § 103

Independent claim 1 (emphasis added) recites:

1. A vehicle air supply system having a compressor, an air dryer, a reservoir adapted to receive air from the compressor via the air dryer, and control means operable to cause a standard regeneration of the air dryer when a predetermined system condition is met, the control means also being operable to cause an intermediate regeneration of the air dryer in advance of said predetermined system condition being met if said system condition is not met within a predetermined time period, **the control means further being operable to prevent the intermediate regeneration**, wherein the control means includes a governor adapted to cause the standard regeneration and a governor bypass adapted to cause the intermediate regeneration, the control means being adapted so as to disable the governor bypass to prevent the intermediate regeneration, **wherein the control means includes a timer, wherein the control means is operable to selectively cause and prevent the intermediate regeneration depending upon air supply requirements.**

The invention recited in independent claim 1 includes, *inter alia*, the novel features of **the control means further being operable to prevent the intermediate regeneration, wherein the control means includes a timer, wherein the control means is operable to selectively cause and prevent the intermediate regeneration depending upon air supply requirements.**

In contrast to the present invention, *Beck* appears to disclose a conventional vehicle air supply system which is solely directed to the concept of enabling an intermediate regeneration which is the opposite of the present invention. The intermediate regeneration of *Beck* occurs in instances where a reservoir pressure dependent regeneration has not occurred within a defined time period, and thus prevents the desiccant from becoming saturated. *Beck* discloses on p. 3, ll. 17-19 (emphasis added) that a “governor bypass arrangement preferably includes a delay means, for example electronic timer, adapted to activate in response to a predetermined system parameter and cause an intermediate regeneration after a predetermined time period has elapsed.”

Additionally, *Beck* discloses (emphasis added) that “[t]he delay means is configured [to] cause an intermediate regeneration of the air dryer when a predetermined time period has elapsed” (see *Beck*, e.g., p. 4, ll. 10-13). Additionally, *Beck* discloses that “[i]n a preferred embodiment the delay means is configured to send a pressure signal to the air dryer to take the compressor off-load and regenerate the air dryer” (see *Beck*, e.g., page 4, ll. 10-13). Furthermore, *Beck* discloses a protection valve “adapted to maintain a predetermined minimum pressure in the first reservoir”, and that “[t]he provision of such a protection valve ensures that the first reservoir holds sufficient pressure to operate the signal piston and cause intermediate regeneration of the air dryer” (see *Beck*, e.g., p. 4, ll. 20-22).

The Examiner correctly admits that *Beck* “fails to disclose a control means [to] also selectively cause and inhibit the regeneration depending upon air supply requirements” (see the Office Action, e.g., p. 3, ll. 10-12), and is reliant on *Cramer* for disclosing this feature.

As seen on page 4 of the Office Action, the Examiner purports that *Cramer* discloses “a compressed air system where a control unit enabling and disabling of the [sic] in response to pressure level variations in the system and it also responds to compressor disabling by causing the system air dryer to regenerate or purge for a predetermined time period (please see the abstract; figs. 1-2; see also col. 1, lines 18-23, lines 35-40, col. 1, line 64 to col. 2, line 9, col. 2, lines 13-17, col. 4, lines 7-18, col. 4, line 61 to col. 5, line 9 and col. 6, lines 11-15).”

However, *Cramer* merely discloses a conventional compressed air system which is directed to the concept of terminating a purge of the air dryer that has already commenced. Termination of the air dryer purge cycle in *Cramer* occurs in instances when the reservoir pressure drops to a predetermined level. *Cramer* discloses in col. 5, ll. 26-36 (emphasis added) that “[s]ince the air dryer is purged at regular intervals...high quality compressed air that is relatively moisture free even in applications in which large quantities of air are consumed is assured...the pressure level in the system is not allowed to reach a dangerously low level at any time because of the resetting of the purge timer when the pressure of the reservoir drops to a dangerously low level, thereby terminating the purging of the air dryer and permitting the compressor to come back on load.” Thus, *Cramer* also remains completely silent with regard to preventing the commencement of the purge cycle, as in the present invention.

Contrary to the disclosures of both *Beck* and *Cramer*, the present invention contemplates circumstances or operating conditions of the vehicle air supply system where the commencement of such a purge of air flow could cause problems. For instance, the vehicle may be provided with an arrangement for operating pneumatic tools, with pneumatic pressure being supplied by the reservoir. Such an arrangement may comprise a conduit, e.g., a flexible hose, connected to a valve of the air supply system, which valve can be opened and closed to admit air from the reservoir to enter the conduit, and pneumatically powered tool connected to the conduit. The tool may be, for example, a pneumatic cutter or wrench. Taking the example of an emergency response vehicle, it will be appreciated that the interruption of the operation of a pneumatic tool in a rescue situation is highly undesirable.

In such an arrangement, the control means are able to recognize that an uninterrupted supply of air is likely to be required. For example, if the vehicle is stationary with the engine running (i.e., running the compressor), and the conduit valve is opened, it can be determined that a pneumatic tool is likely to be used. The control means would be able to ascertain this from sensors monitoring the vehicle speed, ignition system and conduit valve position. Consequently, the control means acts to prevent the possibility of an intermediate regeneration occurring by the methods described in the present specification, i.e., suspending or modifying the operation of the

time which normally causes the intermediate regeneration, or blocking the intermediate regeneration signal to the air dryer (see the specification, e.g., page 5, ll. 21-32).

Furthermore, as seen on page 4 of the Office Action, the Examiner purports:

“...it has been held that the recitations such as ‘adapted to’, ‘to prevent’ and ‘to cause’ with respect to the manner in which claimed apparatuses are intended to be employed do not differentiate the claimed apparatuses from the prior art apparatuses satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). The applicant does not directly disclose the prevention of the commencement of the purge cycle by the control means. The combination of the references *Beck* and *Cramer* clearly discloses all claimed structure including a control means as set forth above are certainly capable of preventing such commencement of the purge cycle.”

The present invention can be distinguished from facts of *Ex parte Masham*. In *Ex parte Masham*, the Board indicated that the prior art “taught all the structural limitations of the claim for the intended use of mixing flowing developer...[h]owever, the mixer was only partially submerged in the developer material” (see, e.g., MPEP § 2114 emphasis added). Moreover, the Board stated that “the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected” (see, e.g., MPEP § 2114). In the present case, however, as explained above, *Beck* and *Cramer* fail to disclose a control means that can selectively cause and prevent the intermediate regeneration depending upon air supply requirement.

In particular, Appellants contend that the control means of the present invention is structurally distinguished over *Beck* and *Cramer*, since the control means of the present invention is able to selectively cause and prevent the intermediate regeneration depending upon air supply requirement, while neither *Beck* nor *Cramer*, taken either alone or in combination, disclose, teach, or suggest a control means able to prevent the commencement of a purge cycle.

Thus, the Examiner’s reliance on the Board’s findings in *Ex parte Masham*, 2 U.S.P.Q.2d 1647 (1987) in the rejection of the present claims is improper because *Beck* and *Cramer*, taken

either alone or in combination, fail to teach, disclose, or suggest all the structural limitations recited in the present claims, at least for the reasons delineated above.

B. Conclusions

At least for the above reasons, *Beck* and *Cramer*, taken either alone or in combination, fail to disclose, teach, or suggest the invention recited in independent claim 1. The dependent claims are also allowable over *Beck* and *Cramer* based on their own merits and for at least the reasons as argued above with respect to their independent claims.

Accordingly, Appellant submits that the rejection of claims 1, 3-10, and 12 under 35 U.S.C. § 103(a) as being unpatentable over *Beck* in view of *Cramer* should be overturned, and an indication of immediate allowability is respectfully requested.

Respectfully submitted,
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VIII. CLAIMS APPENDIX

1. (Previously Presented) A vehicle air supply system having a compressor, an air dryer, a reservoir adapted to receive air from the compressor via the air dryer, and control means operable to cause a standard regeneration of the air dryer when a predetermined system condition is met, the control means also being operable to cause an intermediate regeneration of the air dryer in advance of said predetermined system condition being met if said system condition is not met within a predetermined time period, the control means further being operable to prevent the intermediate regeneration, wherein the control means includes a governor adapted to cause the standard regeneration and a governor bypass adapted to cause the intermediate regeneration, the control means being adapted so as to disable the governor bypass to prevent the intermediate regeneration, wherein the control means includes a timer, wherein the control means is operable to selectively cause and prevent the intermediate regeneration depending upon air supply requirements.

2. (Canceled)

3. (Original) An air supply system as claimed in claim 1, wherein the predetermined system condition is a reservoir pressure and the governor is adapted to operate when the reservoir reaches a target pressure.

4. (Original) An air supply system as claimed in claim 3, wherein the governor sends an off load/purge signal to the compressor and air dryer when the target pressure is reached.

5. (Original) An air supply system as claimed in claim 4, wherein the signal is a pressure signal.

6. (Previously Presented) An air supply system as claimed in claim 1, wherein the control means is adapted to bypass the governor and send an offload/purge signal to the compressor and air dryer.

7. (Previously Presented) An air supply system as claimed in claim 6, wherein the control means further includes a bypass line for the governor and a valve positioned in said bypass line, and the timer is adapted to open said valve.

8. (Original) An air supply system as claimed in claim 7, wherein the valve is solenoid operated.

9. (Previously Presented) An air supply system according to any preceding claim, wherein the timer is activated and suspended in response to a predetermined system condition.

10. (Previously Presented) An air supply system as claimed in claim 6, wherein there is provided means to block the signal to the compressor and air dryer so as to inhibit the intermediate regeneration.

11. (Canceled)

12. (Previously Presented) An air supply system according to any preceding claim, wherein the timer is operable to reduce the time period between subsequent regenerations after inhibiting an intermediate regeneration.

IX. EVIDENCE APPENDIX

There is no evidence related to this Appeal.

X. RELATED PROCEEDINGS APPENDIX

There are no related proceedings to this Appeal.